Claims

What is claimed is:

1. A microturbine engine comprising:

a combustor operable to produce a flow of hot products of combustion;

a turbine rotating in response to the flow of hot products of combustion therethrough, the turbine discharging a flow of hot exhaust gas;

a recuperator receiving the flow of hot exhaust gas and discharging a flow of waste gas;

a heat exchanger housing receiving the flow of waste gas and including a first flow path and a second flow path;

a heat exchanger disposed within the first flow path; and

a control member movable between a first position and a second position, such that when the control member is disposed in the first position the flow of waste gas is directed along the first flow path and when the control member is disposed in the second position the flow of waste gas is directed along the second flow path.

2. The microturbine engine of claim 1, wherein the turbine includes a radial flow turbine.

3. The microturbine engine of claim 1, wherein the heat exchanger includes a finned-tube heat exchanger.

4. The microturbine engine of claim 1, wherein the heat exchanger is supported within a frame, and the frame attaches to the heat exchanger housing.

5. The microturbine engine of claim 4, wherein the frame defines an open window and wherein the flow of waste gas passes through the heat exchanger in a first direction and passes through the open window in a second direction substantially opposite the first direction when the control member is in the first position.

6. The microturbine engine of claim 1, wherein the control member includes a damper rotatable about an axis in response to movement of an actuator.

7. The microturbine engine of claim 6, wherein the actuator includes a hydraulic cylinder.

8. The microturbine engine of claim 1, wherein a fluid flows within the heat exchanger, the microturbine further comprising a sensor measuring the temperature of the fluid.

9. The microturbine engine of claim 8, further comprising an actuator operable to move the control member in response to the measured temperature.

10. A heat exchange device suited for use with a microturbine engine that includes a recuperator that discharges a flow of exhaust gas during operation, the device comprising:

a heat exchanger housing having a first aperture through which the flow of exhaust gas enters the housing, and a second aperture through which the exhaust gas exits the housing;

a heat exchanger within the heat exchanger housing; and

a control member movable between a first position and a second position, the control member directing the flow of exhaust gas from the first aperture, through the heat exchanger, and to the second aperture when in the first position, and from the first aperture to the second aperture substantially without flowing through the heat exchanger when in the second position.

11. The heat exchange device of claim 10, wherein the heat exchanger includes a finned-tube heat exchanger.

12. The heat exchange device of claim 10, wherein the heat exchanger is supported within a frame, and the frame attaches to the heat exchanger housing.

13. The heat exchange device of claim 12, wherein the frame defines an open window and wherein the flow of waste gas passes through the heat exchanger in a first direction and passes through the open window in a second direction substantially opposite the first direction when the control member is in the first position.

14. The heat exchange device of claim 10, wherein the control member includes a damper rotatable about an axis in response to movement of an actuator.

15. The heat exchange device of claim 14, wherein the actuator includes a hydraulic cylinder.

16. The heat exchange device of claim 10, wherein a fluid flows within the heat exchanger, the microturbine further comprising a sensor measuring the temperature of the fluid.

17. The heat exchange device of claim 16, further comprising an actuator operable to move the control member in response to the measured temperature.

18. A method of controlling a temperature of a flow of fluid in a heat exchanger using a microturbine engine, the method comprising:

operating the engine to produce a flow of hot gas;

passing the hot gas through a recuperator to heat a flow of compressed air;

discharging a flow of exhaust gas from the recuperator;

directing the flow of exhaust gas to a control member;

positioning the control member to direct a desired portion of the flow of exhaust gas through a heat recovery device;

passing the flow of fluid through the heat recovery device;

sensing the temperature of the flow of fluid; and

moving the control member to a new position between a first position and a second position in response to the sensed temperature.

19. The method of claim 18, further comprising setting a set point temperature and comparing the set point temperature to the temperature of the flow of fluid.

20. The method of claim 18, wherein the positioning the control member step further includes moving a hydraulic actuator.